

## REMARKS

Claims 1-20 remain pending in the case. Claims 1, and 6 have been amended herein.

### 102(b) Rejection

#### Claim 1

In the Office Action, the Examiner rejected Claim 1 under 35 USC 102(b) as being anticipated by Jeng. Applicant has reviewed the Jeng reference and respectfully asserts that the claimed embodiments of the present invention are not anticipated by Jeng for the following rationale.

Applicant respectfully states that the amended Claim 1 recites the features of providing on the display device concurrent viewing of both a first view of a sculpting object and a second view of the object, the first view of the object providing a full, six-degree-of-freedom orientation control of the view. Support for the amendment to Claim 1 is illustrated in Figure 9 of the present Application, wherein both the first view 130 and the second view 140 are concurrently shown on display 120.

Applicant has read the Jeng reference and understands Jeng to teach that a user can switch between modes with a single key stroke. Therefore, Applicant does not understand Jeng to teach a display providing multiple views of the object for concurrent viewing.

Therefore, Applicant respectfully submits that Jeng neither anticipates nor suggests the present claimed invention as recited in Independent Claims 1 and, as such, Claim 1 traverses the rejection under 35 USC 102(b).

Rejections under 35 USC 103(a)

Claims 2-5

In the Office Action, the Examiner rejected Claims 2-5 under 35 USC 103(a) as being unpatentable over Jeng. Applicant has reviewed the Jeng reference and respectfully asserts that the claimed embodiments of the present invention are not obvious in view of Jeng for the following rationale.

Applicant respectfully states that the amended Claim 1 recites the features of providing on the display device concurrent viewing of both a first view of a sculpting object and a second view of the object, the first view of the object providing a full, six-degree-of-freedom orientation control of the view. Support for the amendment to Claim 1 is illustrated in Figure 9 of the present Application, wherein both the first view 130 and the second view 140 are concurrently shown on display 120.

Applicant has read the Jeng reference and understands Jeng to teach that a user can switch between modes with a single key stroke. Therefore, Applicant does not understand Jeng to teach a display providing multiple views of the object for concurrent viewing.

Therefore, Applicant respectfully submits that Jeng neither anticipates nor suggests the present claimed invention as recited in Independent Claims 1 and, as such, Claim 1 traverses the rejection under 35 USC 102(b). Accordingly, Applicant respectfully submits that Jeng also do not anticipate nor suggest the present claimed invention as recited in Claims 2 through 5 which depend from Independent Claim 1, and that these Claims are also in a condition for allowance as being dependent on an allowable base Claim.

#### Claims 6-19

In the Office Action, the Examiner rejected Claims 6-19 under 35 USC 103(a) as being unpatentable over Westermann. Applicant has reviewed the Westermann reference and respectfully asserts that the claimed embodiments of the present invention are not obvious in view of Westermann for the following rationale.

Applicant respectfully states that the amended Claim 6 recites the features of a method of forming a model of a three-dimensional object comprising:

- generating a three-dimensional set of points;
- grouping the points into a plurality of three-dimensional cells;
- subdividing a cell in the plurality of cells into multiple subdivisions;
- locating adjacent cells that contact the subdivisions; and
- subdividing the adjacent cells to eliminate dangling points, wherein the adjacent cells are subdivided by having only one voxel added to them, and wherein it is unnecessary to subdivide any cells beyond the adjacent cells.

Support for the amendment to Claim 6 can be found throughout the Specification to include page 10 lines 21-28.

Applicant understands Westermann to neither teach nor make obvious the feature of wherein the adjacent cells are subdivided by having only one voxel added to them, and wherein it is unnecessary to subdivide any cells beyond the adjacent cells. Applicant understands Westermann to teach keeping the crack fixing as simple as possible by constructing a radial function that guarantees that the oracle does not allow neighboring cells to differ by more than one generation.

This teaching of Westermann is further shown as being against the method of the present Application with respect to Figures 3A through 3D of the present Application. Specifically, Figure 3C shows a cell with a plurality of subdivisions (at least 8) and figure 3D shows the adjacent cell 80 resolving the subdivisions of cell 70 while requiring no cell subdivision between any other cells adjacent to cell 80.

Furthermore, Applicant understands Westermann to teach against a conforming split technique as not useful for adaptive iso-surface extraction since the many tetrahedra and pyramid elements resulting from the split sometimes cause the total number of generated triangles to actually increase even above the number of triangles that would have been generated for uniform reconstruction on the finest level. Therefore, Applicant understands Westermann to teach away from the features of Claim 6.

Therefore, Applicant respectfully points out that Westermann neither anticipates nor suggests the present claimed invention as recited in Claim 6 and, as such, Claim 6 traverses the Examiner's basis for rejections under 35 USC 103(a).

With respect to Claims 7-19, Applicant respectfully states that they are dependent on an allowable Independent Claim 6 and recite further features of the present claimed invention.

Claim 20

In the Office Action, the Examiner rejected Claim 20 under 35 USC 103(a) as being unpatentable over Westermann in view of Zhou. Applicant has reviewed the Westermann and Zhou references and respectfully asserts that the claimed embodiments of the present invention are not obvious in view of Westermann and Zhou for the following rationale.

Applicant respectfully states that the amended Claim 6 recites the features of a method of forming a model of a three-dimensional object comprising:

- generating a three-dimensional set of points;
- grouping the points into a plurality of three-dimensional cells;
- subdividing a cell in the plurality of cells into multiple subdivisions;
- locating adjacent cells that contact the subdivisions; and
- subdividing the adjacent cells to eliminate dangling points, wherein the adjacent cells are subdivided by having only one voxel added to them, and

wherein it is unnecessary to subdivide any cells beyond the adjacent cells.

Support for the amendment to Claim 6 can be found throughout the Specification to include page 10 lines 21-28.

Applicant understands Westermann to neither teach nor make obvious the feature of wherein the adjacent cells are subdivided by having only one voxel added to them, and wherein it is unnecessary to subdivide any cells beyond the adjacent cells. Applicant understands Westermann to teach keeping the crack fixing as simple as possible by constructing a radial function that guarantees that the oracle does not allow neighboring cells to differ by more than one generation.

This teaching of Westermann is further shown as being against the method of the present Application with respect to Figures 3A through 3D of the present Application. Specifically, Figure 3C shows a cell with a plurality of subdivisions (at least 8) and figure 3D shows the adjacent cell 80 resolving the subdivisions of cell 70 while requiring no cell subdivision between any other cells adjacent to cell 80.

Furthermore, Applicant understands Westermann to teach against a conforming split technique as not useful for adaptive iso-surface extraction since the many tetrahedra and pyramid elements resulting from the split sometimes cause the total number of generated triangles to actually increase even above the number of triangles that would have been generated for uniform reconstruction on the finest level. Therefore, Applicant understands Westermann to teach away from the features of Claim 6.

Therefore, Applicant respectfully points out that Westermann neither anticipates nor suggests the present claimed invention as recited in Claim 6 and, as such, Claim 6 traverses the Examiner's basis for rejections under 35 USC 103(a).

With respect to Claim 20, Applicant respectfully states that it is dependent on an allowable Independent Claim 6 and recites further features of the present claimed invention.

CONCLUSION

In light of the above remarks, Applicant respectfully requests reconsideration of the rejected Claims 1-20.

Based on the argument presented above, Applicant respectfully asserts that Claims 1 through 20 overcome the rejections of record and, therefore, allowance of these Claims is respectfully solicited.

The Examiner is invited to contact Applicants' undersigned representative if the Examiner believes such action would expedite resolution of the present Application.

Respectfully submitted,

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